



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/533,606

12/14/2005

Paul Joern

4084

1678 7590 12/23/2009  
MARSHALL & MELHORN, LLC  
FOUR SEAGATE - EIGHTH FLOOR  
TOLEDO, OH 43604

EXAMINER

TOLIN, MICHAEL A

ART UNIT

PAPER NUMBER

1791

MAIL DATE

DELIVERY MODE

12/23/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/533,606

**Applicant(s)**

JOERN, PAUL

**Examiner**

MICHAEL A. TOLIN

**Art Unit**

1791

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 December 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/CD)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 14 December 2009 has been entered.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-4 and 7-9 are rejected under 35 U.S.C. 102(b,e) as being anticipated by Taggart (US 2002/0059976).

The claims are rejected here for the reasons provided in numbered paragraph 4 of the office action mailed 13 July 2009

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taggart as applied to claims 1-4 and 7-9 above.

The claims are rejected here for the reasons provided in numbered paragraph 6 of the office action mailed 13 July 2009

6. Claim 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taggart as applied to claims 5 and 6 above, and further in view of either one of Wang (US 5038291) or Williamson (US 4534813), and further in view of any one of Cogburn (US 3995080), Cavallaro (US 5078396) or Marshall (US 4627791).

The claims are rejected here for the reasons provided in numbered paragraph 7 of the office action mailed 13 July 2009

***Response to Arguments***

7. Applicant's arguments filed 14 December 2009 have been fully considered but they are not persuasive.

The rejections under 35 USC 112 second paragraph have been withdrawn in view of the amendments to the claims.

Applicant argues that one of ordinary skill in the art would have understood that the claimed two-dimensional fabric is directed to a single ply and not a laminate. This argument is not persuasive because there is nothing in the claims or specification which defines a two-dimensional fabric as one consisting of only a single ply. The examiner must give the claims their broadest reasonable interpretation. See MPEP 2111. A fabric is considered any thin flexible material comprising fibers. Moreover, even if the claimed fabric were limited to a single ply, such does not preclude the addition of further plies to produce a laminate or multi-ply fabric.

Applicant argues that Taggart does not disclose or implying back calculation of fiber orientation from the final three-dimensional target shape. The examiner respectfully disagrees. Taggart explains that a software program generates a numerically controlled machine program to manufacture a blank from a component design (paragraph 48). Among the factors involved in this processing software program are the orientation, i.e. the direction or angle of fibers within the fabric material (paragraphs 45, 47 and 51). Taggart also clearly explains that the entire operation is numerically controlled (paragraph 51). Thus it is clear that fiber orientations are back calculated from a component design. It is further noted that the claims have been

rejected in the alternative with further motivation for providing the claimed back calculation of fiber orientation.

Applicant argues that Wang and Williamson do not teach or suggest back calculation of fiber orientation. In response, these references were relied upon for back calculation of textile geometry. As set forth in the previous office action, mailed 13 July 2009, these references provide alternative motivation for back calculation of the fabric geometry. Cogburn, Cavallaro or Marshall were applied in the alternative for addressing the back calculation of fiber orientation. One cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Applicant argues Cogburn discloses unidirectional fibers within a strip. Applicant further argues that unidirectional fibers within a strip may not have an orientation and geometry adapted to a three-dimensional shape. This argument is not understood. First the claims do not preclude the use of a fabric having unidirectional fibers. Further, it is entirely unclear why Applicant believes a fabric of unidirectional fibers may not be provided with a fiber orientation and fabric geometry adapted for shaping and/or draping into a three-dimensional shape. Cogburn clearly teaches determination of fiber orientations from calculation of load requirements in a three-dimensional part to provide the necessary strength in primary and secondary directions (column 5, lines 48-68; column 6, lines 1-5). Cogburn further teaches laying up a two-dimensional fabric with proper fiber orientation for subsequent shaping and/or draping on a three-dimensional

assembly tool (column 6, lines 59-68; column 7, lines 1-13). Cogburn explicitly recites that such layup includes directional orientation of filaments in a pre-calculated and predetermined manner to suit the requirements of the resultant structural article (column 8, lines 24-28).

Applicant argues Cavallaro and Marshall are not directed to orienting fibers in a single ply by back calculating from the final three-dimensional target shape. First, as previously noted, the claims are not limited to a fabric having a single ply. Further, Cavallaro and Marshall clearly suggest back calculation of fiber orientation. Cavallaro explains that strength and weight should be optimized by calculating the ideal fiber orientations (column 3, lines 14-19). Marshall explains that calculations of fiber orientation to provide a desired bending strength are well known engineering techniques (column 3, lines 34-36) and that fiber orientations can be used to provide different strengths in different directions (column 2, lines 50-53). In view of these teachings, one of ordinary skill in the art would have been motivated to provide the claimed back calculation of orientation in the method of Taggart in order to achieve the necessary strength or stiffness in various directions of the three-dimensional part.

### ***Conclusion***

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL A. TOLIN whose telephone number is (571)272-8633. The examiner can normally be reached on M-F 9am to 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on 571-272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael A Tolin/  
Patent Examiner, Art Unit 1791